C4680-1

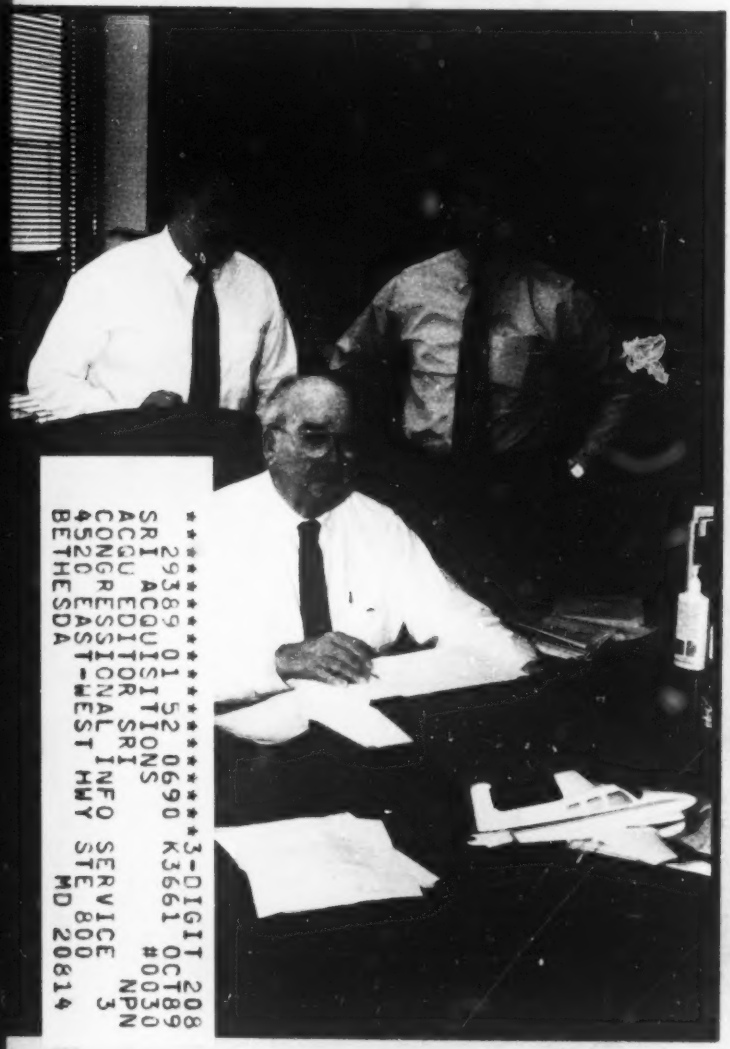
October 1989

$6.00

Why Jobbers Are Being Drawn Into POS
How Extra Touches Pay Off For Truckstop
Why Refiners Are Reformulating Gasoline

NPN

National Petroleum News



**********3-DIGIT 208
29389 01 S2 0690 K3661 OCT89
SRI ACQUISITIONS #00030
ACQU EDITOR SRI NPN
CONGRESSIONAL INFO SERVICE 3
4520 EAST-WEST HWY STE 800
BETHESDA MD 20814

How Vista Petroleum Saves Time, Money With Computerized Purchasing System

NPN
NATIONAL PETROLEUM NEWS
Established in 1909

VOL. 81 NO. 8

Editorial Staff:

Editorial Director & Editor-in-Chief
Frank M. Victoria

Managing Editor
Peggy Smedley

Executive Editor
J. Richard Shaner

Senior Editor
Donald M. Smith

Staff Reporter
Glenn Geigler–Chicago

Production Editor
Julie Miguel

Editorial Assistant
Arlene Clatts

Contributing Correspondents
Marvin Reid
Mark Emond
Angel Abcede

Columnists
Sam Borenkind
Irving Blackman
Paul Forbes
Howard Upton

Executive Staff:

Chairman of the Board
Elliot Stein Jr.

Vice Chairman of the Board
I. Martin Pompadur

President
Robert E. Yarbrough Jr.

Publisher
Wm. D. Straub

Circulation Director
Roger DiGregorio

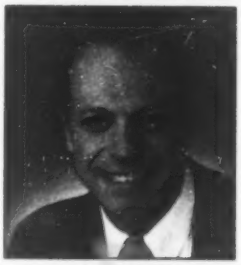
Circulation Manager
Patricia Kaminski

Director of Production
George Chmielarz

Production Manager
Lloyd Shultz

Classified Sales
Elizabeth Santelli

Regional Reporters:
East Coast: J. Richard Shaner, P.O. Box 1476, Morristown, NJ 07962-1476. (201) 428-2902
Midwest: Angel Abcede, 950 Lee St., Des Plaines, IL 60016. (312) 296-0770
South: Glenn Geigler, 950 Lee St., Des Plaines, IL 60016. (312) 296-0770
West: Mark Emond, P.O. Box 8130, Anaheim, CA 92812-0130. (714) 774-5598



Editor's Viewpoint

Few people would question that the onslaught of current and pending legislation and regulation ranks among the biggest problems this industry has encountered since decontrol. The impact, directly or indirectly, has for the most part been negative. But there is, perhaps, one positive side effect: the industry seems to be pulling together as it rarely has in the past to alleviate the problem or at least prevent it from getting even further out of hand. One indication is that associations are working in closer cooperation and forming a united front to present the industry's viewpoint.

Most recently, the Petroleum Marketers Assn. of America, the Society of Independent Gasoline Marketers Assn. of America and the National Assn. of Convenience Stores joined to schedule an "environmental rally" in Washington D.C. on October 4. The purpose is to gather petroleum marketers and C-store operators from across the country to directly lobby Congress on the key issues of Stage II vapor recovery and financial responsibility for underground storage tanks. As this issue was going to press, a good many marketers apparently were planning to participate in the event.

These same associations, along with the American Petroleum Institute, not long ago hammered out a model state underground tank bill that was satisfactory to everyone involved. There are other instances of this unified approach. Whatever differences or competition or rivalry there may be among these groups seems to have been put on the back burner as they work together for the common benefit of all their members. All of them have a stake in what's happening. All have something to gain and something to lose. Even the Service Station Dealers of America, an unlikely ally of associations that represent jobbers and oil companies, has joined in on certain issues. SSDA and API, it should be noted, have been working together for years to promote on-board canisters on automobiles as an alternative to Stage II.

While meeting with officials of these associations in Washington a few months ago, this cooperative attitude was clearly evident to me. I hope it continues. Each of these groups has its own particular strengths, its own contacts and Congressional backers. API can be a powerful lobbying organization and its broad technical resources can provide solid support for arguments made by the jobber and dealer associations that represent a broad spectrum of independent businessmen from the very large to the very small. Working together, they present a formidable, cohesive front that lawmakers and agency bureaucrats will find hard to ignore. What these associations need most now is the strong and broad based support of their members.

—Frank M. Victoria

NPN—National Petroleum News (ISSN 0149-5267) is published monthly (except semi-monthly in June) by Hunter Publishing Limited Partnership, 950 Lee Street, Des Plaines, Illinois 60016, (312) 296-0770.

©NPN—National Petroleum News

Second class postage paid at Des Plaines, Illinois and additional mailing offices.

Subscriptions are solicited only from executive, management and supervisory personnel at the supplier and wholesale level of oil marketing, engaged in the distribution, merchandising, transportation and storage of petroleum, TBA products, and convenience store items. Position, company and segment of industry must be indicated on subscription orders.

The Audit Bureau

HUNTER™

Basic **subscription rates** for one year to individuals in the petroleum marketing industry are: U.S. $56; Canada $65 (U.S. $); Foreign surface mail $71 (U.S. $); Foreign airmail $106 (U.S. $). Non-industry personnel rates for one year are: U.S. $71; Canada $80 (U.S. $); Foreign surface mail $86 (U.S. $); Foreign airmail $130 (U.S. $); **Single copy price:** U.S. & Canada $8.00 (includes first class postage). Foreign $10.00 (includes airmail postage). **Mid-June Factbook:** U.S. $50; Canada $60; Foreign $70. The publisher reserves the right to accept or reject any subscription. (R) Title registered in U.S patent office. **Change of address:** Notices should be sent promptly; provide old mailing label as well as new address; include ZIP or postal code. Allow 6-8 weeks for change. Send address changes, correspondence regarding subscription service or subscription orders to: Circulation Department, NATIONAL PETROLEUM NEWS, 950 Lee Street, Des Plaines, Illinois 60016. Or call (312) 296-0770, 9 a.m. to 4 p.m.

Postmaster: Send address changes to NPN—NATIONAL PETROLEUM NEWS, 950 Lee Street, Des Plaines, Illinois 60016.

NATIONAL PETROLEUM NEWS

12 Regional News

12 East
"Coastal Mart" name dispute is resolved

13 Midwest
BP adopts "wait and see" approach on Clean Air Act

16 South
Coupon acceptance can be ticket to larger market

18 West
Arco replaces unleaded with reformulated gasoline

21 General News

21 AMA beer ban could be costly for C-stores
21 Exxon Valdez cost could dwarf Texaco-Pennzoil deal
21 ARCO's new blend to replace regular
22 Updated forecast suggests decline in gasoline prices
24 Mapco purchases 37 NCS Nashville C-stores
24 FFPA's Lundberg predicts falling gasoline prices
24 Eight states adopt strict car emissions rules
26 New oil terminal could cut offshore spill risk
26 Coastal buys stations, terminal from Sun
28 Program offers help with UST compliance

30 Features

30 Cover Report
How Vista saves time, money with computer purchasing

34 POS
Why marketers are drawn into POS expansion

38 Management
Special touches pay off for megabuck truckstop

44 Marketing
Gasoline reformulation challenges alternative fuels

66 O&E Management—Howard Upton
The Sears Lesson

68 Tax Corner—Irving Blackman
What's the story on Section 89?

70 Legal Tips—Sam Borenkind
States topple workplace injury cases

71 Marketing Management—Paul Forbes
Choosing your work space

Departments

56 About Oil People
7 Ahead of the News
48 Briefs
9 Catching Up
76 Classified
72 Coming Meetings
3 Editor's Viewpoint
10 Marketplace
61 Product Showcase
10 Trends

Illinois-based Vista Marketing Group, Ltd. has reduced its annual net gasoline buying prices from three-to four-tenths of a cent a gal. with its in-house developed computerized pricing system.

Page 30

Electronic payment systems through on-site POS terminals are beginning to sweep through the industry in big numbers. Marketers now have better access to POS systems than ever before.

Page 34

Award-winning truckstop marketer Browne Barr pulls in the traffic by offering truckers the type of services they want in a clean, well-lit environment.

Page 38

• TRENDS

Analyst's Idea: Fill SPR With Low-Price OPEC Crude Oil Surpluses

Economist John Lichtblau some time ago advanced a suggestion that might do a world of good for some members of the Organization of Petroleum Countries and, at the same time, benefit U.S. taxpayers by cutting government spending as well.

Keep an eye on it; it could catch on. And if it does it could be very helpful in sopping up global crude oil surpluses.

Lichtblau, president of Petroleum Industry Research Foundation, says the OPEC states could sell or lease—at discounted prices—some of their excess supplies of crude oil to the United States for deposit only in the nation's Strategic Petroleum Reserve (SPR).

That would enable the OPEC states to generate a much-needed cash flow that they might otherwise not get for years to come and would enable the U.S. to fill its SPR vaults at a reduced cost that would not stress the nation's already strained budgets.

The main point, however, is that the OPEC states could produce and sell the excess crude to the SPR without violating their tenuous agreements covering production quotas and market economics.

It almost sounds too good to be for real.

The U.S. will need, between now and the year 2000, up to 250-million/bbl. of crude oil to bring the SPR to its government-approved level of 1-billion/bbl. That would be enough crude to sustain the nation for a minimum of 98 days should an international crisis develop or some other calamity curtail foreign oil.

Keep in mind that U.S. dependency on imports, especially from OPEC, will continue to grow through the '90s and will probably be in the neighborhood of 60-65% by 2000. This is essentially what the SPR is all about—an escape hatch for U.S. consumers. Remember what happened in the '70s when oil supplies dwindled and the world went mad?

Lichtblau presented his case at the 11th annual international energy conference in Caracas, Venezuela. Venezuela, by the way, is an OPEC member whose domestic economy is in very bad shape and would benefit materially from a stepped-up infusion of much needed cash.

Lichtblau's argument is persuasive:

"The community of interest between buyer and seller in a transaction of this nature is based on the assumption that the U.S. government wishes to procure incremental volumes of crude oil for noncommercial purposes and cannot pay the commercial market price for these incremental volumes. The supplier, on the other hand, should be interested in providing oil at a profit from his unused surplus which would otherwise remain in the ground and earn no money at all for a very long time."

Lichtblau also suggested that in the event OPEC members do not want to sell their crude oil excesses at a discounted price, they might be interested in a leasing arrangement in which the crude oil would be deposited in the SPR for a nominal rental fee. The terms of the lease agreement would have to be negotiated as would the ownership or title of the crude oil upon the expiration of the contract.

Says Lichtblau:

"It should be pointed out that while leasing SPR oil instead of buying it at (current) market prices reduces the annual cash expenditure, the cumulative cost over time is likely to be the same (or perhaps even more) for the United States. Thus the advantage (of this concept) is primarily the reduction in annual budget outlays."

Even that would be welcome news. In this day of mega-billion budget deficits, anything that reduces government spending would be welcome news for most U.S. taxpayers.

—by J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

JULY	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$1.132	$1.075	$1.092	$1.264
Regions				
Northeast	1.150	1.070	1.090	1.285
North Central	1.131	1.097	1.095	1.285
South	1.122	1.067	1.078	1.237
West	1.130	1.071	1.111	1.278

Source: U.S. Dept. of Labor, Bureau of Labor Statistics.

STOCKS (Add 000 bbl.)

	9/1/89	9/2/88
Gasoline (All types)	17,725	217,836
Gasoline (Unleaded)*	156,501	38,075
Jet kerosine	41,711	40,629
Distillates	116,792	123,364
Residual	42,156	38,800

** Included in gasoline total.*

Source: American Petroleum Institute.

Updated EIA Forecast Suggests Return To $1/Gal. Gasoline Prices

Uneasy pump postings this past August and with the return of 97¢ unleaded regular in many marketplaces pretty well confirmed what federal forecasters said in their mid-summer update—that gasoline prices are eroding again and will continue their downward ways until late next spring.

The Energy Information Agency short-term forecast predicted that gasoline prices would peak in the third quarter at an average of $1.14/gal. (all grades and services), then would slide over the winter months to $1.01 or $1.02/gal. by next April. The new forecast, dated this past July but published in August, made only a few changes in the basic assumptions and statistics [*NPN*—July '89, p23].

Demand growth is expected to continue in 1990, but at a pace that's hardly noticeable—1%. The projections are based on $17/bbl. crude oil, which is about what U.S. refiners were paying for it in recent months.

There's an outside chance that Kuwait and Saudi Arabia may step up their crude oil output in a temper tantrum and that could easily raise specters of the 1986 price collapse again.

Following are highlights of the latest EIA short-term forecast.

MID-TERM OUTLOOK; FIRM PRICES THIS YEAR, SOFTER NEXT

	1Q	2Q	3Q	4Q	Full Year	% Chng
PRICE PROJECTIONS (¢ gal.) (a)						
1989						'89/'88
Motor gasoline(b)	$0.96	$1.13	$1.14	$1.09	$1.08	12.5%
No. 2 diesel fuel	.92	1.00	.96	.95	.96	5.5
No. 2 heating oil						
Wholesale	.53	.55	.52	.56	.54	14.9
Retail	.86	.87	.82	.8	.85	4.9
Residual(c)	.36	.41	.39	.40	.39	16.7
1990						'90/'89
Motor gasoline(b)	1.01	1.02	1.12	1.09	1.06	(1.9)
No. 2 diesel fuel	.94	.92	.92	.94	.93	(3.1)
No. 2 heating oil						
Wholesale	.54	.50	.52	.56	.54	0.0
Retail	.89	.85	.83	.88	.88	2.4
Residual(c)	.41	.38	.38	.40	.40	1.2
DEMAND PROJECTIONS (million b/d)						
1989						'89/'88
Motor gasoline	7.08	7.38	7.76	7.40	7.41	1.0
Leaded	1.00	.96	1.12	1.02	1.02	(23.9)
Unleaded	6.08	6.42	6.64	6.38	6.38	6.3
% Unleaded	86%	87%	96%	86%	86%	4.0%
Distillates	3.38	2.88	2.83	3.36	3.11	(0.3)
Residual	1.60	1.26	1.12	1.28	1.32	(4.3)
TOTAL U.S.(d)	17.62	16.73	17.38	17.71	17.36	0.5
1990						'90/'89
Motor gasoline	7.01	7.67	7.72	7.47	7.47	0.8
Leaded	.93	.97	.94	.87	.93	(9.7)
Unleaded	6.08	6.70	6.78	6.60	6.54	2.5
% Unleaded	87%	87%	88%	80%	89%	2.0%
Distillates	3.61	2.93	2.85	3.39	3.20	2.9
Residual	1.28	1.06	1.08	1.25	1.17	(11.4)
TOTAL U.S.(d)	17.57	16.99	17.39	17.86	17.45	0.5

(a) Includes federal and state taxes on all products except heating oils, which are un-taxed;
(b) Average for all grades and services;
(c) Average for all grades and sulfurs;
(d) Includes all other oils.

Source: Energy Information Administration, Short-Term Energy Outlook, dated July and published in mid-August 1989.

Gasoline Trends: Reformulation Challenges Alternative Fuels

Gasolines in the United States are changing with dazzling speed. Events since the early 1970s have conspired to force unprecedented modifications, but nothing has so galvanized the oil industry as the threat of alternative fuels, particularly methanol.

The clincher that momentous changes are yet to come is the fact that the U.S. oil and automotive industries are seemingly working together as never before to head off the environmental race to alternative fuels, if they can. All of that methanol talk was way off in California until President George Bush put it on the national agenda.

The oil industry wants governmental agencies to stop mandating particular fuels. The industry urges government to keep to establishing clean air standards and let the oil industry come up with the fuel to do it. The oil industry appears to be betting that the job can be done easily with "reformulated gasoline."

By Mark Emond
Contributing Correspondent

Reformulation trends

Gasoline has been undergoing significant composition changes ever since environmental agencies decided in the early 1970s that lead in gasoline was a serious health hazard. This led to catalytic exhaust devices and the design of engines to operate only on unleaded gasoline, introduced generally in early 1975.

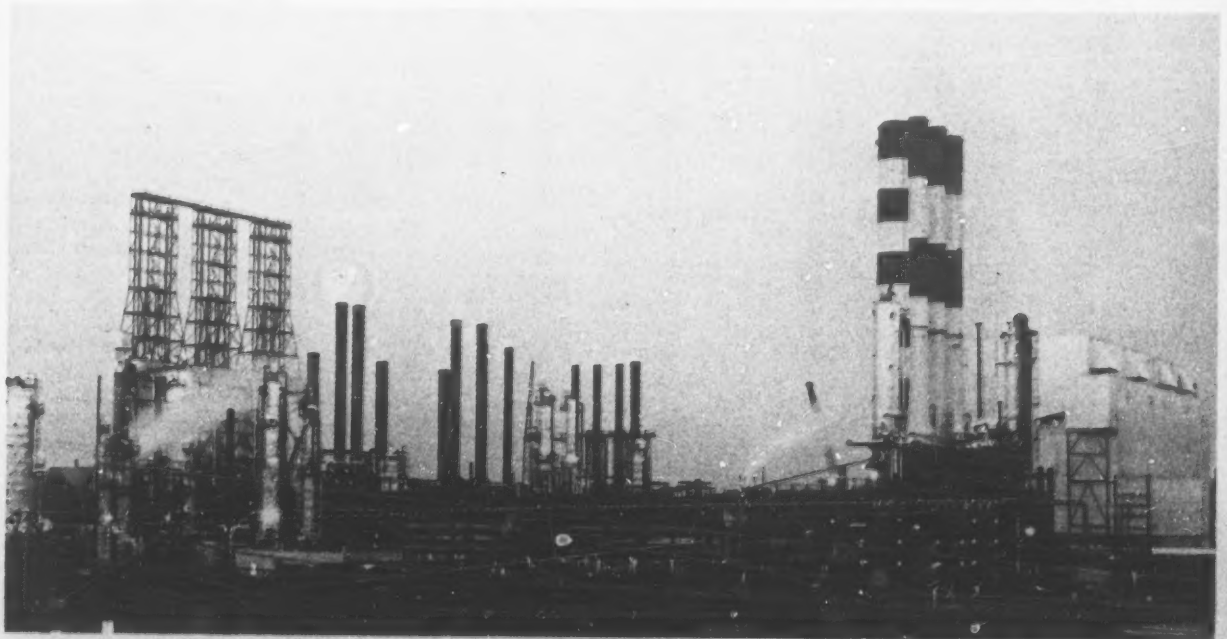
The Environmental Protection Agency further ordered the reduction of lead in the mid-1980s, down to a current minuscule 0.5-gram/gal. of gasoline. This phasedown put severe pressures on refiners, which had to come up with octanes by alternative means. The octanes were obtained by increasing the "severity" of refinery operations.

Reforming and catalytic cracking, considered "severe" processes, produce more aromatics in gasoline and increase volatility, the two main contributors to unwanted gasoline emissions. Volatility, measured by Reid Vapor Pressure (RVP), is the tendency of gasoline to evaporate into the air.

EPA would not permit use of other antiknock additives, such as MMT, a manganese compound, because they are claimed to increase hydrocarbon emissions. This policy might change in the future, but the ban has stood since 1977. Probably the most that could be expected by a lifting of the prohibition is a gain of between 0.5 and 1-octane numbers at the very small concentrations EPA would likely allow.

This might seem like a small gain for some MMT producers and oil refiners to be earnestly seeking, but any pressure taken off octane production reduces the need to manufacture aromatics and lighter products, such as butane, which increase volatility.

One route that is now acceptable is to use oxygenates to help clean up emissions. Among the oxygenates, ethers are stealing a march on ethanol and methanol because of their high octane quality, relatively low



The EPA's lead reduction order in the mid-1980s, down to a current minuscule 0.5-gram/gal. of gasoline, put severe pressures on refiners, which had to come up with octanes by alternative means. Mostly, the octanes were obtained by increasing the "severity" of refinery operations. Reforming and catalytic cracking, considered "severe" processes, produce more aromatics in gasoline and increase volatility, the two main contributors to unwanted gasoline emissions.

Percentage of U.S. Motor Gasoline Sales by Grade 1983-1989

Year	Regular Lead	Regular Unleaded	Middle Unleaded	Premium Unleaded
1983	46.6%	41.5%	---	11.9%
1984	41.6	44.3	---	14.1
1985	37.2	47.6	---	15.2
1986	31.8	51.0	---	17.2
1987	23.7	56.0	---	20.3
1988	17.5	59.3	---	24.2
1989*	13.1	57.9	4.8	24.2

* First 4 months.

Source: Energy Information Administration, NPN estimates.

vapor pressure and compatibility with hydrocarbons in the refining process. MTBE can also be manufactured at the refinery.

Because of these advantages, the ether class of oxygenates "will eventually preempt the position of alcohols as gasoline blending agents," says George Unzelman, president of Hy Ox Inc. and a recognized authority on gasoline composition.

An alternative to ethanol, using methanol with co-solvents, has already been largely supplanted by methyl tertiary butyl ether (MTBE). Ethyl tertiary butyl ether (ETBE) has not gained the widespread use that MTBE has, but could replace ethanol eventually except for small-scale downstream blending.

ETBE would probably require tax credits, as ethanol does, to compete with MTBE. Since ETBE can be manufactured in part from a variety of biological materials, such as garbage, it is renewable and might attract environmental attention for that reason, too.

In areas with seasonal carbon monoxide problems, like Denver and Phoenix, oxygenates are being mandated to improve gasoline burning. Ethanol is favored by some marketers, but refiners generally prefer MTBE. Although this problem is sometimes viewed separately, it is part of the larger problem of cleaner air.

Other ethers might have a potential in U.S. gasoline. Their relative value is still being studied. Other improvements could come in refinery process technology. But, in general, the pattern for obtaining higher octanes has been established, Unzelman believes.

Exit leaded

A total phaseout of lead in gasoline was originally planned under provisions of the federal Clean Air Act of 1970. Subsequently EPA directed a phaseout beginning in 1977.

Total lead elimination was planned by Jan. 1, 1988, but in response to pressures from various groups contending that older vehicles and farm equipment needed leaded gasoline, EPA indefinitely delayed complete phaseout.

As a result of the lead phasedown and other factors, refiner sales of leaded gasoline fell from approximately 73% of their total gasoline sales in 1977 to 18% in 1988. As companies dropped leaded in favor of a three-grade unleaded slate, leaded sales continued to drop, amounting to less than 12% nationally in August 1989.

Skidding leaded sales caused refiners to look for better ways to utilize their three-grade capabilities. A middle grade of unleaded gasoline was the favored response. It was usually of 89-octane numbers, the same as that of the displaced leaded regular.

The introduction of middle grades had little directly to do with cleaner air, but it was a consequence of the government mandate to phase down use of lead.

After Amoco first introduced a middle grade in Jacksonville, Fla., in early 1986, other companies followed the same year. On the comeout, Amoco's midgrade achieved 16% of sales. This and other factors seemed to be saying that the public was not entirely satisfied with the 87-octane unleaded regular the industry almost universally offered. Sales of unleaded premium had grown from 12% of total gasoline sales in 1983 to 23% in 1988, according to the Energy Information Administration.

Since 1986, sales and markets of unleaded midgrade have expanded significantly in PAD District I, which is the East Coast from Maine to Florida, and modestly in PAD II, the Midwest (see table). Data are provided by the EIA, which began tracking midgrade sales and prices in 1989.

On a U.S. map of states with 3% or more unleaded midgrade sales, only two states west of the Mississippi do, Missouri and Louisiana. East of the Mississippi, only six states do not: Minnesota, Wisconsin, Iowa, Arkansas, Kentucky and Vermont.

In the first quarter of 1989, EIA reports, midgrade sales amounted nationally to 4.8% of total gasoline sales. These sales were mostly in PADD I, where in March they accounted for 58.6% of all the unleaded midgrade sold in the country. In PADD I, midgrade sales in March amounted to 8.6% of all gasoline sales there.

In Pennsylvania, Delaware, Maryland, the District of Columbia and Virginia, midgrade sales exceeded 10% of total sales. Maryland led with 18.1%, followed by D.C. with 17.0%.

In PADD II, March midgrade sales were 4.8% of the district's total gasoline sales. Sales were highest in Ohio, with 10%, in Indiana, with 7.7%, and in Illinois, with 7.3%.

With most of the midgrade experimentation coming from majors, independent refiners were practically left out of that growing market. They accounted for only 2.5% of total unleaded midgrade sales in March, compared with 23.4% of all grades.

Something to watch in the race for reformulated gasolines is whether majors dominate that market, too. It appears at the outset that they will, because of the potentially large expenditures that will be required to develop cleaner-burning gasolines.

Whether these competitive consequences will cause concern in governmental circles remains to be seen.

The premium race

While refiners were straining to produce more octanes, they were pushing premium sales, a seeming contradiction. A gallon of unleaded premium uses about five more octanes than a gallon of unleaded regular does,

and a gallon of unleaded midgrade about two more.

During the first four months of 1989, midgrade and premium sales of 90-million gal./day accounted for the consumption of 405-million more octanes a day than would have been consumed had unleaded regular been sold instead—30-million octanes in midgrade and 375-million in premium.

These extra octanes amounted to 1.5% of the total 27.447-billion octanes a day, or 309.9-million gal./day, sold during the first four months of 1989. The weighted-average octane number of all gasolines sold during this period was 88.57

The appeal to refiners is, of course, better average margins. Refiners have been very successful in upgrading buyers to unleaded premium, and more recently to unleaded midgrade. In 1983 they sold only 11.9% as premium, but in 1988 they sold 23.2% of that grade. During the first four months of 1989, unleaded premium sales were 24.2% of the total.

Leaded regular sales declined from 46.6% in 1983 to 17.5% in 1988 and to 13.1% the first four months of this year.

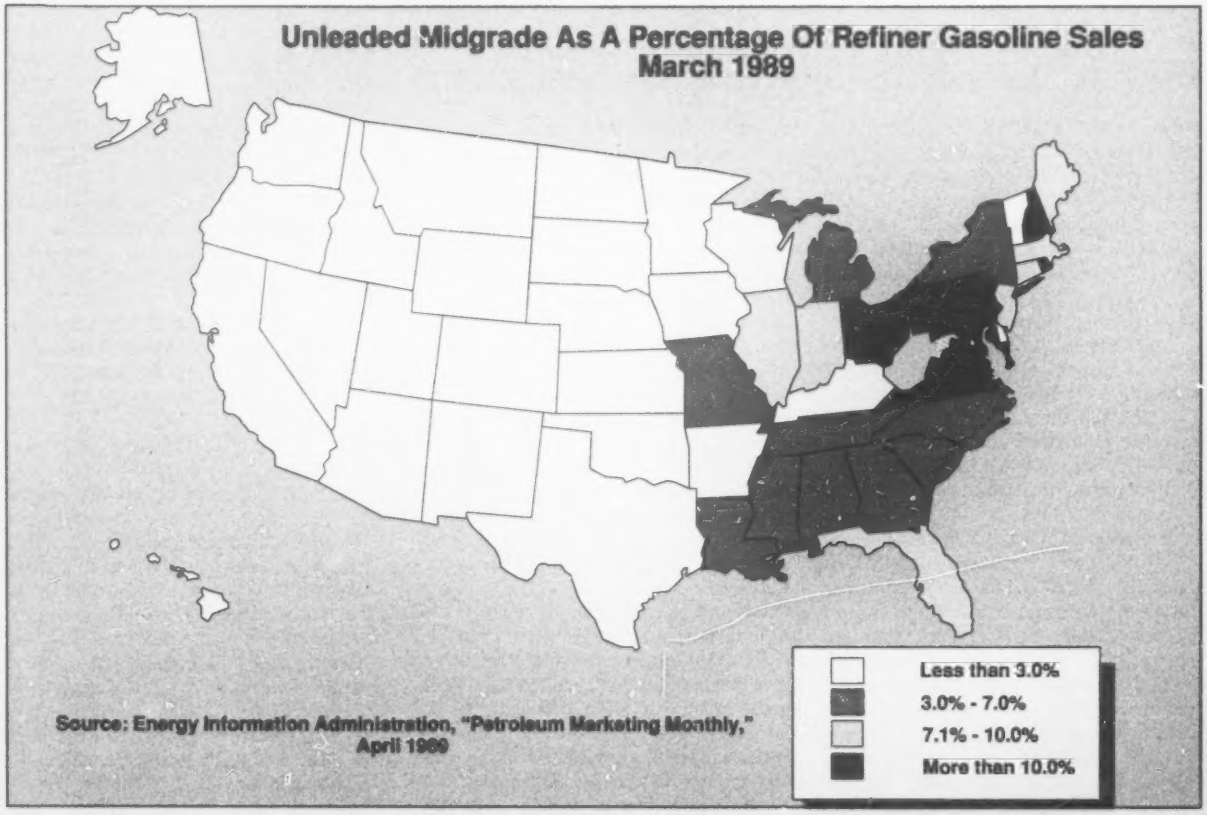
Unleaded regular sales grew from 41.5% in 1983 to 59.3% in 1988 and to 57.9% the first four months of 1989. (Note: EIA had lumped unleaded midgrade sales into unleaded regular sales prior to 1989. In January 1989, EIA calculated the bias eliminated by excluding midgrade from regular-grade sales was 4.4 to 5.3 percentage points, depending on class of trade.)

Combined middle and premium unleaded sales accounted for 29% of gasoline sales in the first four months of 1989. Since these products are sold at premium prices over unleaded regular, refiners and marketers enjoy appreciably larger average margins.

The aggregate amount of these premium prices is considerable. According to EIA data, U.S. average midgrade prices were 7.90¢/gal. higher than leaded regular prices in March 1989 and unleaded premium prices were 13.02¢/gal. higher.

NPN calculates that higher pump prices on these grades totaled $5,708,000/day in March. At this rate, the premium paid by consumers for midgrade and premium in a year would total more than $2-billion. (This premium would be shared by refiners and resellers.)

Are midgrade and premium sales a waste of octanes? Perhaps. About 80% of cars currently on the road should be satisfied by 87-octane regular unleaded, 90% by 89-octane midgrade, and 98% by 92-octane premium. Only 5% of new cars have owner's manual premium recommendations.


Unleaded Midgrade As A Percentage Of Refiner Gasoline Sales
March 1989
Less than 3.0%
3.0% - 7.0%
7.1% - 10.0%
More than 10.0%
Source: Energy Information Administration, "Petroleum Marketing Monthly," April 1989

The map shows that of the states with 3% or more unleaded midgrade sales, only two states west of the Mississippi do, Missouri and Louisiana. East of the Mississippi, only six states do not: Minnesota, Wisconsin, Iowa, Arkansas, Kentucky and Vermont. According to EIA, midgrade sales amounted nationally to 4.8% of total gasoline sales in the first quarter of this year, mostly in PADD I, where in March they accounted for 58.6% of all the unleaded midgrade sold in the country. In PADD I, midgrade sales in March amounted to 8.6% of all gasoline sales there. In Pennsylvania, Delaware, Maryland, the District of Columbia and Virginia, midgrade sales exceeded 10% of total sales. Maryland led with 18.1%, followed by D.C. with 17.0%. In PADD II, March midgrade sales were 4.8% of the district's total gasoline sales. Sales were highest in Ohio, with 10%, in Indiana, with 7.7%, and in Illinois, with 7.3%.

Unleaded Midgrade Sales As A Percentage Of Refiner Gasoline Sales, Jan.-Mar. 1989

	Jan.	Feb.	Mar.
United States	4.4%	4.6%	4.8%
PAD District I	8.3	8.3	8.6
PAD District II	4.1	4.5	4.8
PAD District III	2.5	2.7	3.0
PAD District IV	*	*	*
PAD District V	0.5	0.5	0.5

* Withheld to avoid disclosure of individual company data.

Note: PADD I, East Coast; PADD II, Midwest; PADD III, Southwest; PADD IV, Rockies; PADD V, West Coast.

Source: Energy Information Administration.

But many motorists perceive a value in premium gasolines. Some say they experience better performance when they use the middle and premium grades. Many undoubtedly do. Premium gasolines usually contain larger doses of additives for cleaning carburetors, fuel injectors and intake systems.

If refiners can come up with the octanes, it's evidently profitable for them and their marketers to promote midgrade and premium, and efforts to upgrade consumers will doubtlessly continue.

Oil, auto industry join

It isn't clear just when it happened that the oil and automotive industries decided to get together to work out an acceptable approach to cleaner air. Probably regular inter-industry liaison people started conversations, but top management would have to become involved to start the ball really rolling.

When James S. Morrison, executive vice president of Atlantic Richfield and the marketing member of the triumvirate that runs the company, testified before the South Coast Air Quality Management District in December 1988, he predicted that a group of oil and auto companies would reach an agreement within 90 days on a project to develop cleaner engines and fuels to meet tighter clean air standards.

Something was in the wind, but as events turned out, not an agreement so soon. A high-level Detroit meeting in July 1989 brought together top executives of Amoco, Atlantic Richfield, Chevron, Shell, Texaco, General Motors, Ford and Chrysler. Unocal and others are reported to have become involved since that time. Another meeting was reported on the way.

Some goals are conflicting. Essentially, the oil industry wants auto manufacturers to design new engines and install on-board equipment to help clean up the air. Auto makers, who believe they have borne the main cleanup burden so far, want oil companies to lead the way with cleaner fuels. Perhaps the differences can be patched up.

Both industries, despite their differences, appear to be united by the common desire to stop the methanol bandwagon.

Methanol is not the only alternative fuel that could cause upheaval, but the principal one. Other frontrunners are compressed natural gas, propane and methanol-gasoline blends.

More on these joint efforts will undoubtedly be heard, but meanwhile Arco has jumped to the forefront in what seems certain to develop into a heated race to reformulate gasolines.

Arco's new gasoline

Arco announced in August that beginning September 1 it would drop leaded regular in southern California and substitute a low-emission unleaded regular to reduce air pollution from pre-1975 cars and pre-1980 trucks. These are the vehicles that were designed to use leaded gasoline and were not equipped with catalytic converters.

The wider leaded-regular nozzles were to be used on the new product, called EC-1 (emission control). This means that only older cars and trucks would be affected. The target is the 1.2-million older vehicles, or 15% of all vehicles on the road in southern California, that cause more than 30% of the area's pollution, Arco said.

Arco made clear that this was only a first step, that the objective was to make cleaner burning gasolines for new cars next, and then devote many millions of dollars to meeting stringent regulations already laid down in California for the year 2000 and beyond (see page 16).

From the standpoint of gasoline composition, Arco's formulation changes are consistent with the established patterns described above.

Here's what Arco says about the new fuel. MTBE is added for octane enhancement. EC-1 contains a minimum of 1% oxygen by weight. Olefins and aromatics, which combine in the presence of sunlight to create smog, are lowered by one-third. Benzene, considered a carcinogen, is reduced by about 50%. Sulfur content is lowered by up to 80%. RVP is cut 1-psi (pound per square inch) below the current standard. EC-1 emits less carbon monoxide than usual fuels do.

It seems clear that Arco's is just the first of what will be many gasoline reformulations. An Arco spokesman admits that the company was apprehensive for some time that the planned introduction would be upstaged by some other company's announcement. Other companies may be that close.

In the spirit of the traditional intense marketing competition among oil companies, the introduction of each new formulation is likely to be accompanied by fanfare and hype. Arco plans to spend $10-million in advertising and promotion to launch EC-1. The process seems likely to continue for many years to come.

Some environmental officials think the best solution will be a combination of fuels. Skeptics believe oil companies, in their desire to avoid scrapping their gasoline technologies, may tend to be overenthusiastic in their claims.

The outcome of "operation reformulation" won't be known for some time, but a the success or failure will likely be determined in large measure by how well the oil and auto industries can work together towards a common objective. NPN